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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,387	03/03/2004	Hiroaki Takahata	Q80091	3528

23373 7590 03/17/2006
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EXAMINER

ZEMEL, IRJNA SOPJIA

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/791,387

Applicant(s)

TAKAHATA ET AL.

Examiner

Irina S. Zemel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3-3-04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 4,791,147 to Tanaka et al., (hereinafter "Tanaka '147").

Tanaka '147 discloses expandable resin compositions comprising an olefin based polymer and a thermally decomposable foaming agent. Among suitable olefinic polymers, the reference expressly discloses copolymers of at least 80 % of butane with and alpha-olefins, such as propylene. See column 3, lines 20-31. Thus, choosing the copolymer that corresponds to the claimed olefinic copolymers from the list of expressly disclosed suitable copolymers would have been obvious with reasonable expectation of adequate results. Among the suitable thermally decomposable materials, the reference lists several chemical compounds, which have decomposition temperatures both below and above 190 C. See list in column 3, lines 33-43. The reference further expressly discloses use of more than one thermally decomposable blowing agent (see, for example, illustrative embodiment 1). Thus, choosing two blowing agents from the list of expressly disclosed compounds would be obvious with reasonable expectation of adequate results, absent showing of unexpected results that can be clearly attributed to two claimed components with specific decomposition temperatures. The reference

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further discloses blending the olefinic co-polymer with polypropylene extruding and foaming the composition. The reference discloses blending polybutadiene copolymer, polypropylene and blowing agent together, while, arguably, claims 4 and 7 may be interpreted as requiring first blending polybutadiene component with the blowing agent and then blending it with polypropylene. However, it is well established by the case law that selection of any order of mixing ingredients is *prima facie* obvious. *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA 1930). The reference further expressly discloses several inorganic or physical blowing agents as suitable blowing agents for the invention. See column 3, lines 28-33. Thus, use of an additional blowing agent from the list of suitable blowing agent would have been obvious with reasonable expectation of successful cumulative results absent showing of unexpected results that can be attributed to the presence of a physical blowing agent. The reference further expressly discloses addition of several common additives, see column 3, lines 44-49.

The invention as claimed, thus, would have been obvious from the disclosure of Tanaka '147 and choosing the components that fully correspond to the claimed components and their combinations from the list of expressly disclosed components would have been obvious with reasonable expectation of adequate results absent showing of unexpected results.

Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in combination with EP 0928805 to Montell North America Inc., (hereinafter "Montell").

The disclosure of Tanaka '147 is discussed above. The difference between the disclosure of Tanaka '147 is that Tanaka '147 does not expressly disclose carbon dioxide among suitable physical blowing agents. However, functional equivalency of carbon dioxide and various halogenated or non-halogenated hydrocarbons as blowing agents for polyolefin based compositions is notoriously known in the art, as evidenced, for example, by Montell (page 4, [0021]). Thus, substituting one of expressly disclosed hydrocarbons of Tanaka with carbon dioxide would have been obvious with reasonable expectation of adequate results in view of such known functional equivalence in the absence of showing of unexpected results that can be clearly attributed to use of specifically claimed carbon dioxide.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 4,918,111 to Tanaka et al., (hereinafter "Tanaka '111").

Tanaka '111 discloses expandable resin compositions comprising an olefin based polymer and a thermally decomposable foaming agent. Among suitable olefinic polymers, the reference expressly discloses copolymers of at least 80 % of butane with and alpha-olefins, such as propylene. See column 3, lines 55-65. Thus, choosing the copolymer that corresponds to the claimed olefinic copolymers from the list of expressly disclosed suitable copolymers would have been obvious with reasonable expectation of adequate results. Among the suitable thermally decomposable materials, the reference lists several chemical compounds, which have decomposition temperatures both below and above 190 C. See list in column 3, lines 27-47 where the reference further expressly discloses use one or more than one thermally decomposable blowing agent in

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combination. Thus, choosing two blowing agents from the list of expressly disclosed compounds would be obvious with reasonable expectation of adequate results, absent showing of unexpected results that can be clearly attributed to two claimed components with specific decomposition temperatures. The reference further expressly discloses addition of several common additives, see column 4, lines 14-19.

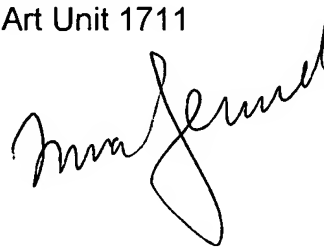
The invention as claimed, thus, would have been obvious from the disclosure of Tanaka '111 and choosing the components that fully correspond to the claimed components and their combinations from the list of expressly disclosed components would have been obvious with reasonable expectation of adequate results absent showing of unexpected results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina S. Zemel whose telephone number is (571)272-0577. The examiner can normally be reached on Monday-Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571)272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Irina S. Zemel
Examiner
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A handwritten signature in black ink, appearing to read 'Irina Zemel', written in a cursive style.

ISZ